

JONATHAN ASHDOWN

OBJECTIVE

To continue to deliver what the future demands and to provide inclusive, transformative, student-centered leadership and high-quality educational opportunities that address the diverse needs of community.

EDUCATION/DEGREES

*Rensselaer Polytechnic Institute
Troy, NY*

Masters of Business Administration (MBA)
Degree conferred: May 2014 GPA: 3.84

*Rensselaer Polytechnic Institute
Troy, NY*

Doctor of Philosophy (Ph.D.) in Electrical Engineering
Degree conferred: August 2012 GPA: 3.76

*Rensselaer Polytechnic Institute
Troy, NY*

Masters of Science (M.S.) in Electrical Engineering
Degree conferred: May 2008 GPA: 3.82

*Rensselaer Polytechnic Institute
Troy, NY*

Bachelor of Science (B.S.) in Electrical Engineering
Degree conferred: May 2006 GPA: 4.0

*Hudson Valley Community College
Troy, NY*

Associate of Science (A.S.) in Engineering Science
Degree conferred: May 2004 GPA: 3.96

PROFESSIONAL EXPERIENCE

*Executive Dean (Presidential Report)
Hudson Valley Community College
Troy, NY
Sept 2022 - Present*

- Served on the Executive Leadership Team alongside other college Vice Presidents, Chief Diversity Officer, College Counsel, and Chief Operating Officer and worked collaboratively with key college stakeholders including faculty, staff and students to shape key strategic initiatives to support the college's mission. Deep appreciation for Collective Bargaining Units and Process.
- Led the establishment and chartering of HVCC's new "North Campus" in Malta, NY, expanding educational access and program offerings for students seeking careers spanning various fields within healthcare, STEM, and applied technologies. Note: SUNY BOT unanimously approved Branch Campus in 2024.
- Spearheaded partnerships and apprenticeship offerings with local employers and industry leaders, including Globalfoundries, to align educational offerings with workforce demands and foster hands-on training opportunities.
- Served as integral part of Advancement Team, in collaboration with Foundation leadership, Grants Department, and other key internal and external stakeholders to secure funding for key initiatives, including the \$12.5 million STEM Education Center (completed in December 2023), and helped attract and secure significant donations as well as both public and private-sector support.
- Successfully worked with the Grants Team to secure millions of dollars in grant funding, enhancing program development, student support services, and workforce training at the college.
- Drove the complete renovation of existing campus facilities, transforming them into fully functional, inclusive spaces that meet all the needs of a comprehensive college environment.
- Advocated for enhanced diversity, equity and inclusion (DEI) in the workforce by supporting SUNY PRODiG Fellowship candidate recommendations served as Principal Investigator (PI) for NSF LSAMP grant which helped increase diversity in the workforce by providing opportunities for students from historically underrepresented minority populations.
- Advocated for mental health and wellness by championing initiatives that support student well-being and resilience, fostering a supportive campus community.
- Collaborated with the P-TECH Early College High School program to build an inclusive environment, integrating high school students into the college setting and providing tailored support for their success.
- Engaged with stakeholders across the college and community to create an inclusive, accessible space for students, faculty, and staff, to enhance culture of equity and belonging.
- Served as integral member of the Strategic Planning Steering Committee (2024) and Assessment & Institutional Effectiveness (AIE) Committee.

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Dean of STEM (VPAA Report)
Hudson Valley Community College
Troy, NY
June 2019 - Present

- Led the STEM Division, managing several academic departments, and
- collaborated with faculty, department chairs and key staff on the development of cutting-edge academic courses and programs (e.g., Welding and Fabrication, Electric and Autonomous Vehicle, Drone Technology, etc.).
- Contributed to the college's Strategic Plan (2019) and Master Facilities Plan (2020) through active participation on key committees, collaborating with internal and external stakeholders to shape the college's growth.
- Played a key role on the Enrollment Innovation Team (EIT), developing strategies to increase enrollment and improve retention across academic programs.
- Ensured seamless operations of the STEM Division, particularly through challenges posed by the COVID-19 pandemic.
- Academic Dean of record who oversaw the completion and outfitting of two brand new state-of-the-art structures at the college including the Gene Haas Center for Advanced Manufacturing Skills (GHCAMS) in Troy, NY and the STEM Education Center in Malta, NY, and expanding access to state-of-the-art educational facilities. Ensured buildings were outfitted with state-of-the-art furniture and equipment and secured funding for robotics lab, which led to significant interest and collaborative efforts with industry (e.g., GE) and 4-year institutions (e.g., RPI).
- Supported faculty and department chairs to launch new programs, such as Welding and Fabrication Technology and Electric & Autonomous Vehicle Technology, aligning curriculum with industry needs.
- Supported professional development, encouraging faculty participation in training and conferences like the National Coalition of Certification Centers (NC3) Leadership Summit, promoting knowledge sharing within the STEM division and beyond.
- Guided the college through the process to achieve the prestigious designation as a "Leadership School" under NC3.
- Supported department chairs and faculty in their grant application efforts, whereby the team secured multiple NSF awards to support program development in fields such as Electric & Autonomous Vehicles and Drone Technology.
- Fostered strong internal and external partnerships, including collaborations with Albany International Airport for the establishment of the Aeronautical Technology Institute (ATI) and met with the FAA throughout the process of establishing an Aircraft Technician program.
- Actively engaged in academic governance through service on the Academic Senate, ensuring alignment of STEM initiatives with the broader college mission.

Instructor/Assistant/Adjunct Professor
Hudson Valley Community College
Troy/Malta, NY
Jan. 2011 – Present

- Instructed several courses in various departments and programs including ABET-accredited Electrical Engineering Technology A.A.S. (Achieved Tenure in 2018), Engineering Science A.S. (Adjunct), Physical Sciences A.S. (Adjunct), and Electrical, Construction and Maintenance Programs A.O.S. (Adjunct)
- Developed courses and curriculum in collaboration with fellow faculty and program advisory board members to ensure that program curriculum aligned with industry/employer needs (e.g., General Electric, Globalfoundries).
- Assisted Department Chair and Dean with program accreditation and supported several visits from the Accreditation Board for Engineering Technology (ABET).
- Served as a delegate-at-large within the faculty union for approximately 2 years.
- Actively participated in the college's academic senate for approximately 5 years.
- Advised two student clubs including the IEEE Club and Amateur Radio Club.

Electronics Engineer
SPAWAR Systems Atlantic
North Charleston, SC
Nov. 2012 – Jan. 2014

- Researched and developed innovative new technologies to promote information assurance for the U.S. Department of Defense.
 - Led multidisciplinary team on a premier defense program with \$140 Million budget and offered key subject matter expertise and programmatic expertise to manage cost, schedule and performance.
 - Worked as the principal investigator (PI) and Program Manager (PM) for three Naval Innovation Science & Engineering (NISE) Projects including: Ultrasonic through-wall communication, Advancing Underwater Communications, & Infrasonic Detection of Surface and Subsurface Marine Vessels.
 - Completed a two-week intensive training to become a certified military-grade unmanned aerial system (UAS)/drone operator.
 - Leveraged expertise in various technologies and software programming environments including MATLAB, C++ and VHDL.
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Graduate Research Assistant
Rensselaer Polytechnic Institute
Troy, NY
Aug. 2006 – Aug. 2012

- Conducted research in ultrasonic through-wall communications.
- Co-authored and published technical reports and papers (see publications).
- Implemented channel characterization system using LabVIEW (M.S. Thesis).
- Developed communication protocols to convey information through metal walls.
- Designed ultrasonic system for sensor control and monitoring.
- Designed custom circuitry and custom printed circuit boards.
- Experienced with soldering and utilization of electronic instrumentation tools and equipment (e.g., oscilloscope, spectrum analyzer, digital multimeter).

Internship
Clough Harbor & Associates LLP
Albany, NY
May 2008 – Dec. 2008

- Modeled electrical systems utilizing cutting-edge analysis software.
- Conducted in depth fault current and arc-flash studies.
- Created and edited technical reports for the NYS Office of General Services (OGS) to inform future energy planning and decision-making.

PUBLICATIONS

Doctoral Dissertation

- High-rate ultrasonic data communication through metallic barriers using MIMO-OFDM techniques, *Rensselaer Polytechnic Institute (2012)*

Institute of Electrical and Electronics Engineers (IEEE)

- An Ultrasonic Through-wall Communication System with Power Harvesting *IEEE Ultrasonics Symposium (2007)*
- Electrical optimization of power delivery through thick steel barriers using piezoelectric transducers *IEEE International Society for Optics and Photonics (2010)*
- Penetration-free system for transmission of data and power through solid metal barriers, *IEEE Military Communications Conference (MILCOM) (2011)*
- Multi-Channel Data Communication Through Thick Metallic Barriers, *IEEE International Conference on Communications (ICC) (2012) –Best Paper Award*
- A Robotics Based Design Activity to Teach the Doppler Effect, *IEEE Integrated STEM Education Conference (ISEC) (2012)*
- A full-duplex ultrasonic through-wall communication and power delivery system, *IEEE Transactions on Ultrasonics, Ferroelectrics, & Frequency Control (2013)*
- Improving Spectral Efficiency of D2D Cellular Networks through RF Energy Harvesting, *IEEE GLOBECOM (2016) –Best Paper Award*
- On the performance of relay-assisted D2D networks under spatially correlated interference, *IEEE GLOBECOM (2016)*
- Fundamentals of spatial RF energy harvesting for D2D cellular network, *IEEE GLOBECOM (2016)*
- A physical layer security scheme for mobile health cyber-physical systems, *IEEE Internet of Things Journal (2017)*
- Resource allocation for a multichannel ultrasonic through-wall communication system, *IEEE INFOCOM (2017)*
- Interference alignment for downlink multi-cell LTE-advanced systems with limited feedback, *IEEE Transactions on Wireless Communications (2017)*
- On the Channel Estimation of Multi-Cell Massive FD-MIMO Systems, *IEEE International Conference on Communications (ICC 2018)*
- Realizing Green Symbol Detection via Reservoir Computing: An Energy-Efficiency Perspective, *IEEE International Conference on Communications (ICC 2018) –Best Paper Award*
- Leader-follower based Coalition Formation in Large-scale UAV Networks, *IEEE INFOCOM (2018)*
- Cognitive relay networks with energy and mutual-information accumulation, *IEEE INFOCOM (2018)*
- A Unified Framework for Joint Mobility Prediction and Object Profiling of Drones in UAV Networks, *IEEE Journal of Communications and Networks (2018)*
- High-rate ultrasonic through-wall communications using MIMO-OFDM, *IEEE Transactions on Communications (2018)*
- Sparse waveform design for secure LPD/LPI underwater acoustic communications, *IEEE OCEANS (2018)*
- Spectrum Sensing Falsification Detection in Dense Cognitive Radio Networks using a Greedy Method, *IEEE NAECON (2018)*
- Wildfire Monitoring in Remote Areas using Autonomous Unmanned Aerial Vehicles, *IEEE INFOCOM (2019)*
- Content-Based User Association and MIMO Operation over Cashed Cloud-RAN Networks, *IEEE Transactions on Communication (2019)*

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- Distributed cooperative spectrum sharing in uav networks using multi-agent reinforcement learning, *IEEE Consumer Communications & Networking Conference (CCNC 2019)*
- A Solution for Dynamic Spectrum Management in Mission-Critical UAV Networks, *IEEE GLOBECOM (2019)*
- Optimal Relaying Beamforming in Multiple Access Broadcast Channel (MABC) Bidirectional Cognitive Radio Networks in Presence of Interferers, *Springer International Journal of Wireless Information Networks (2018)*
- Green massive traffic offloading for cyber-physical systems over heterogeneous cellular networks, *Springer International Journal on Mobile Networks and Applications (2019)*
- Electrical optimization of power delivery through thick steel barriers using piezoelectric transducers, *SPIE Defense, Security, and Sensing Conference (2010)*
- A high-temperature acoustic-electric system for power delivery and data communication through thick metallic barriers *SPIE Defense, Security, and Sensing Conference (2011)*
- Finite element modeling and simulation of a two-transducer through-wall ultrasonic communication system *ASME International Mechanical Engineering Congress and Exposition (2009)*
- Mechanical design implications on power transfer through thick metallic barriers using piezoelectric transducers *ASME International Mechanical Engineering Congress and Exposition (2010)*
- Two ultrasonic transducers through-wall communication system analysis *156th Meeting of the Society of the Acoustical Society of America (2010)*
- Teaching Practical Software Tools Using Screencasts While Simultaneously Reinforcing Theoretical Course Concepts *ASEE Conference on Innovations in Engineering and Technology Education (2011)*
- Method and apparatus for an acoustic-electric channel mounting, *US Patent 8,681,587 (2014)*
- Adaptive system for efficient transmission of power and data through acoustic media, *US Patent 9,054,826 (2015)*
- Ultrasonic high temperature and pressure housing for piezoelectric-acoustic channels, *US Patent 9,505,031 (2016)*
- Full-duplex ultrasonic through-wall communication and power delivery system with frequency tracking, *US Patent 9,455,791 (2016)*
- Multi-channel through-wall communication system using crosstalk suppression, *US Patent 9,331,879 (2016)*
- Multi-channel through-wall communication system using crosstalk suppression, *US Patent 9,331,879 (2019)*

Springer Journal

Society of Photonics Instrumentation Engineering (SPIE)

American Society of Mechanical Engineers (ASME)

Acoustical Society of America (ASA)

American Society of Engineering Education (ASEE)

Granted Patents

ENGINEERING PROFESSIONAL MEMBERSHIPS/HONOR SOCIETIES

- Eta Kappa Nu**
- Tau Beta Pi**
- IEEE**
- Phi Theta Kappa**
- RPI chapter of the International Honor Society for Electrical Engineers
- Dedicated to engineering excellence
- Leading global professional association for the advancement of technology (Chair of Schenectady Section of IEEE Signal Processing Society Jan. 2018 – Present)
- International Scholastic Honor Society (Chapter President 2004-05)

SCHOLARSHIPS AND AWARDS

- Best Paper Award**
- Change the World Challenge Winner**
- SMART Scholarship**
- Outstanding Teaching Assistant Award**
- NYS Business Plan Competition**
- Distinguished Alumni Award**
- Best conference paper at IEEE professional conferences (2012, 2016, 2018)
- Awarded to a student who has developed a technology to change the world (2012)
- Science, Mathematics, and Research for Transformation (2011-2012)
- Awarded to the most outstanding graduate teaching assistant (2006, 2009)
- Awarded 1st Place in the high-tech track (2014)
- Awarded to an alumnus that exemplifies qualities of community and professional leadership with outstanding accomplishments in the areas of professional achievement, volunteer services and participation in public service organizations (2024)